

10-12-59

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U.S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE
PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STATION

FOREST INSECT CONDITIONS
JOSHUA TREE NATIONAL MONUMENT
APPRAISAL SURVEY

September 1959

On September 21, R.C. Hall from the Station made an appraisal survey of the Joshua Tree National Monument, in response to a request from Superintendent Wm. R. Supernaugh dated August 25. This request came to us via the office of the Supervisor, San Bernardino National Forest. Hall was accompanied on the inspection by naturalist James R. Youse.

The principal problem reported by the Monument was the dying of junipers in many areas. The inspection covered most of the areas where juniper made up a significant proportion of the herbaceous ground cover. Some of the more important of these were along the east-west highway from Split Rock to Lost Horse Valley, Pleasant Valley, and Juniper Flat.

There were two specific insects involved in all areas visited. One was a twig girdler believed to be Styloxus bicolor (Champlain and Knull) belonging to the roundheaded borer family Cerambycidae. It appears that this insect deposits its eggs near the terminal of the twig, and the larvae bore downward just beneath the bark for a distance of about 6 or 8 inches. They then completely girdle the stem with the tunnels in the sapwood portion. Thereafter they enter the pith and bore back toward the terminal, where they complete their development and emerge through the side of the stem. This damage causes the twig to die and turn a rust-red color.

Attacks by this insect were very heavy; many junipers had more than twenty tips that had been attacked and killed this year. Attacks by this insect were common on bushes that otherwise appeared to be relatively healthy. Attacks also occurred on bushes which were in various stages of decadence.

Styloxus bicolor has been collected from juniper from the southern California desert country since 1928. Other years in which collections have been made are 1939, 1941, and 1950. From the Station collection records, it would appear that this insect was in outbreak in 1939 and again in 1950.

The other insect found was one of the flatheaded borers belonging to the family Buprestidae, genus and species undetermined. This latter insect appeared to be associated with junipers in advanced stages of decadence,

but wherever attack occurred the affected stem was completely killed. There was strong evidence that this flatheaded borer was playing a secondary role in the death of juniper since some dead stems showed little or no signs of attack.

The primary source of damage in juniper probably can be attributed to drought. This theory is strengthened by the fact that other associated desert species show signs of pronounced decadence where no evidence of insect damage was found. These include creosote bush, desert willow and desert bitterbrush. In the latter case, practically all of the desert bitterbrush in the Juniper Flat area was so badly injured that only an occasional live branch was found on numerous bushes.

While in the Juniper Flat area an appraisal was made of the pine engraver problem in pinyon pine. An extensive survey of this area revealed only three faded trees. Two of these were checked and a very weak attack of the California five-spined engraver, Ips confusus Lec. was found in the top five feet of a small tree. In the other tree examined the only insect found was a flatheaded borer. This is a decided contrast to the situation existing in this area during the winter of 1957-58, when the engraver beetle was killing trees in large groups over most of this area.

Discussion

Tip-killing by the twig girdler, although very heavy this season, is not expected to cause permanent damage to the juniper attacked, and no course of control action is suggested.

The flatheaded borer appears to be secondary to drought as a cause of damage and again no control action is suggested. Many of the bushes in early stages of decadence will probably recover with improved moisture conditions.

The pine engraver population in pinyon is at a low level, but it is suggested that areas of pinyon be kept under surveillance and that the Station be advised of any signs of increased activity.

October 12, 1959
Berkeley, California

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Entomologist